



# UNITED STATES PATENT AND TRADEMARK OFFICE

WPA  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,593	11/28/2003	Pascal Gabet	4590-242	5672
33308	7590	09/25/2007	EXAMINER	
LOWE HAUPTMAN & BERNER, LLP 1700 DIAGONAL ROAD, SUITE 300 ALEXANDRIA, VA 22314			LE, DINH THANH	
ART UNIT		PAPER NUMBER		
2816				
MAIL DATE		DELIVERY MODE		
09/25/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/722,593	GABET ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	DINH T. LE	2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 29 June 2007.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1,2 and 4-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-2 and 4-20 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

***FINAL REJECTION***

***Claim Rejections***

***Claim Rejections - 35 USC § 112***

Claims 1-2 and 4-9 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 1, the recitation and “a variable ratio divider” on line 7 and “division rank Na” on line 11 and “N1 . . . NP” on line 19 is confusing because it is unclear if this is additional “variable ratio divider” and “rank Na”, “N1 . . . Np” or further recitation of the previously claimed “divider” on line 5 and “rank Na” on line 3 and “N1 . . . Np” on line 16. The recitation “the desired fractional step values” on line 14, “the cycle” on line 11 and “the value” on line 12 lacks clear antecedent basis. It is unclear what the “desired fractional step values” and “N1, . . . NP” “constant frequency step” are where the reference frequency Fref comes from, how it is related to the synthesizer and how the evolution of the division rank Na can be “varied” and dependent on the value of the factor Nb since the Na and the Nb do not have structural relationship with each other. It is not understood how the desired fractional step values can be obtained” as follows”. Fref . . . frequency step” on lines 16-20.

The remaining claims are dependent from the above rejected claims and therefore also considered indefinite.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-11 and 13-16 are rejected under 35 USC 102 (b) as being anticipated by Petersson et al (US 5,140,284).

As the best construed, Petersson et al disclose in Figure 1 a circuit comprising:

- a synthesizer (21-25) for synthesizing a frequency (25-1 12.5M1c) with a variable steps (j7.5M1I2- 25M1'17,=12.5M1V to 112.5M1-12-75M1R=37.5M114, see Table 1 at column 5;
- one variable rank divider (26) located after the synthesizer (221-25); and
  - a frequency controller (31) for deliver division rank command to the diver (26), the frequency command to the divider (21) for controlling the variable frequency steps and the synthesis command to the divider (25) for controlling the synthesis steps.
- With regard to claim 11, the variable-rank divider Nb vary according to an arithmetic sequence.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-9, 12 and 17 are rejected under 35 USC 103(a) as being unpatentable over Petersson et al (US 5,140,284) in view and Figure 2 of the applicant's admitted prior art and further in view of Dekker (US 6,239,660).

Petersson et al discloses a synthesizer circuit

As the best construed, Petersson et al disclose in Figure 1 a circuit comprising:

- a synthesizer (21-25) for synthesizing a frequency (25-112.5MHZ) with a variable steps (37.5MHZ- 25MHZ=12.5MHZ to 112.5MHZ-75MHZ=37.5MHZ), see Table 1 at column 5;
- one variable rank divider (26) located after the synthesizer (221-25); and
  - a frequency controller (31) for deliver division rank command to the diver (26), the frequency command to the divider (21) for controlling the variable frequency steps and the synthesis command to the divider (25) for controlling the synthesis steps.

However, Petersson et al does not disclose that the synthesizer is a fractional step phase-locked loop synthesizer and a filter is placed after the divider.

The applicant's admitted prior art teaches in Figure 2 a synthesizer comprising a fractional step modulo for providing fractional frequency steps.

Dekker teaches in Figure 2 a synthesizer circuit comprising a filter (212) placed after the synthesizer (200) for removing unwanted high frequency noise.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the fractional step modulo taught by the admitted prior art in the circuit of Petersson et al for the purpose of providing fractional frequency steps and the filter taught by Dekker in the circuit of Petersson for the purpose of removing unwanted high frequency noise.

With regard to claim 4, the variable-rank divider Nb takes the values N1=8 to Np= 24, these values following an arithmetic progression, and wherein the maximum frequency of the synthesizer is given by  $F_4=8 \times 4.68M11Z=37.5M14Z$ .

With regard to claims 6 and 8, the variable-rank divider (26) takes the values N1=8 to Np=

24.

With regard to claim 7 and 14,  $173 = 12.5M1 - 12$  is substantially equal to or smaller than  $a174 = 8/12 \times 37.5M + 1Z = 25M11Z$  where  $a = 8/12$  is the smallest value obtained in dividing two consecutive elements one after the other.

With regard to claim 9, as understood, the mixer is read on the phase detector (22) of Petersson et al where it receives the output signal (fvco) and a mixing signal (fre).

With regard to claims 5 and 12, although the step frequency  $F3 = 12.5\text{MHZ}$  is not equal or slightly lower than  $(N1/N2) * F4 = 8/24 \times 37.5\text{MHZ} = 25\text{MHZ}$  as claimed; however, the step frequency of Petersson et al can be selected by selecting the divisors P and R as shown on Table 1 at column 5. Thus, selecting a predetermined frequency step for the circuit of Petersson in order to accommodate with the requirement of a predetermined system in which the circuit of Petersson is to be used would have been obvious at the time of the invention. The same is true for claim 17 in which the reference frequency and the step frequency can be selected to equal to the LCM of the sequence N1.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2816

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards, can be reached at (571) 272-1736.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DINH T. LE  
PRIMARY EXAMINER

9/12/07